

# Nicklaus Choo

SENIOR · CARNEGIE MELLON UNIVERSITY

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## Education

### Carnegie Mellon University

Pittsburgh, PA, USA

B.S. IN COMPUTER SCIENCE, CONCENTRATION IN ALGORITHMS & COMPLEXITY

Aug 2018 - Expected May 2022

- Cumulative GPA **3.58**, School of Computer Science Dean's List, High Honors F19, F20.

- Selected courses:

<b>10-701</b> Machine Learning (PhD)	<b>15-210</b> Parallel Data Structures & Algos	<b>21-241</b> Matrices and Linear Transformations
<b>15-411</b> Compiler Design (C++)	<b>15-213</b> Introduction to Computer Systems	<b>21-259</b> Calculus in 3D
<b>15-440</b> Distributed Systems (Java)	<b>15-251</b> Great Ideas in Theoretical CS	<b>21-301</b> Combinatorics
<b>15-451</b> Algorithm Design & Analysis	<b>15-259</b> Probability and Computing	<b>21-373</b> Abstract Algebra ( <i>Current</i> )
<b>15-459</b> Quantum Computation ( <i>Current</i> )	<b>15-260</b> Statistics and Computing	<b>80-413</b> Category Theory ( <i>Current</i> )

## Work Experience

### NetApp SOFTWARE ENGINEER INTERN *SunnyVale, CA, USA*

May 2021 - Aug 2021

- 3x speedup for OS compile-update-reboot time for ONTAP virtual machines
- Automated ONTAP cloud cluster setup configuration for dynamic load testing
- 2.7x speedup for WAFL scheduler client I/O latency with minimal slowdown (0.8x) to WAFL scheduler replication operations latency
- Further optimized 3.5x speedup for client I/O and 1.2x speedup for replication operations with online random forest server load prediction

### ZODAJ FULL STACK SOFTWARE ENGINEER INTERN *Pittsburgh, PA, USA*

May 2020 - Aug 2020

- Devised SMS and Android COVID-19 contact tracing for Senegal in partnership with Senegalese health authorities
- Designed NoSQL, PostgreSQL databases along with AWS Lambda RESTful API for TCN protocol contact tracing
- Directed and implemented all permissions and roles within ZODAJ for Amazon AWS databases
- Created exposure overlap algorithm for  $n$  people in a store that runs in  $\max(O(k) \text{ or } O(n \log n))$ , where  $k$  is overlap count
- Wrote graph algorithms, discrete-time Markov chain SIR epidemic modeling for tracking infections

### BOSCH ASEAN LINUX SYSTEMS ENGINEER INTERN (DEVOPS) *Singapore*

May 2019 - Aug 2019

- Enabled Jenkins server to run 2 ISO builds in parallel (1 executor, 2 slaves) for testing via dynamic port allocation
- Identified bottleneck in debugging failed builds and significantly reduced debug time via auto log extraction from QEMU disks on build servers
- Modified Jenkins pipeline to reduce deployment testing from 20 mins to 1 min
- Began migration of current inventory servers to new OCS inventory servers via Ansible for seamless configuration
- Authored Linux Debian package for unit tests automation (security/functionality) on new OS installations

### Eyeota Pte Ltd DATA ANALYTICS INTERN *Singapore*

Dec 2017 - May 2018

- Programmed data cleaning and classification of advertiser and buyer data from programmatic buy-side platforms
- Extracted advertisers' target demographic trends via both web-scraping and buyers' purchasing data
- Streamlined updates of daily, weekly, and monthly audience data sales revenue via complete process automation

### Singapore Armed Forces PLATOON SERGEANT, TRANSPORT FORMATION *Singapore*

Jan 2016 - Nov 2017

- Automated human resource and vehicle accounting of over 20 combat vehicle types and 400 individual units.

### A\*STAR SIMTECH Research MACHINE LEARNING RESEARCH INTERN *Singapore*

Jun 2014 - Dec 2014

- Utilized k-means clustering, partial least squares regression, extreme learning machine, and multiple linear regression to predict ink cartridge lifespans with industry standard of > 97% accuracy, thus eliminating destructive batch-testing

## Technical Proficiencies

### Tools & Frameworks

- C | C++ | Bash | Python | Java | Kotlin | SML | HTML | CSS | JavaScript
- Ansible** server configuration, OS startup configuration
- AWS** Lambda, EC2, S3, RDS, DynamoDB, IAM, Neptune
- Docker** containerized OS build testing, app testing
- Jenkins** continuous feature/pipeline testing and deployment

**Terraform** TCN protocol backend configuration/deployment  
**Front-end** .ISO download UI, log reporting, Android  
**Back-end** build pipeline optimization, DB integration  
**Agile** tri-weekly Sprint, daily SCRUM

## Extracurriculars & Projects

### 15-251 Great Ideas in Theoretical CS Course Tutor

- Conducted one-on-one tutoring sessions for students in the class

### Sheet Music Assistant

- Created Python app with optical & audio recognition to read sheet music, playback, display and auto-flip pages for musicians during live performance